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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,074	01/23/2001	Robert Christopher Dixon	AUS920000614US1	2499

7590

02/14/2003

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EXAMINER

TSAI, CAROL S W

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/768,074

Applicant(s)

DIXON ET AL.

Examiner

Carol S Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of claimed invention exceeds 150 words in length.
Appropriate correction is required

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 8, 10, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,963,887 to Giorgio.

Giorgio discloses a multiple fan monitoring circuit for use with a plurality of fans, wherein each of said plurality of fans operates at a different frequency and generates a tach signal indicative of said fan operation, comprising: a shaping network (filter 22 shown on Fig. 1), wherein the waveform shaping network is coupled to said plurality of fans (fans 32A-32N shown

on Fig. 1) and utilized to waveshape a tach signal generated by said corresponding fan (see col. 3, line 56 to col. 4, line 55); and a frequency processing circuit (microprocessor 42 shown on Fig. 1), coupled to the waveform shaping network, that receives said waveshaped tach signals at a fan sense node port 82 shown on Fig. 2) (see Fig. 1 and col. 5, lines 11-51).

Giorgio does not disclose a plurality of shaping networks.

The Examiner takes Official Notice that it is known to duplicate or multiplying components in order to duplicate or multiply their functions.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Giorgio's system to include a plurality of shaping networks, in order that square tach feedback signals with all unnecessary high frequency components can be removed out by shaping networks respectively.

As to claim 8, Giorgio also discloses a method for monitoring a plurality of fans utilizing a single sense node, wherein each of said plurality of fans operates at a different frequency and generates a tach signal indicative of said fan operation, said method comprising: waveshaping each of said tach signals generated by said plurality of fans (see col. 3, line 56 to col. 4, line 55); combining said waveshaped tach signals at said single sense node into a single combined signal and separating said single combined signal into multiple components, wherein each of said multiple components corresponds to an associated fan in said plurality of fans (see Fig. 2 and col. 5, lines 60-67).

As to claim 14, Giorgio also discloses a data processing system, comprising: a processor (central processing unit (CPU) 70 shown on Fig. 2) having at least one fan sense node (port 82 shown on Fig. 2); a plurality of fans (fans 32A-32N shown on Fig. 1), wherein each of

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said plurality of fans operates at a different frequency and generates a tach signal indicative of said fan operation (see Fig. 2); and a multiple fan monitoring circuit (system 40 shown on Fig. 1), coupled to said plurality of fans, including: a waveform shaping network (filter 22 shown on Fig. 1), wherein the waveform shaping network is coupled to said plurality of fans and utilized to waveshape a tach signal generated by said corresponding fan (see col. 3, line 56 to col. 4, line 55); and a frequency processing circuit (microprocessor 42 shown on Fig. 1), coupled to said shaping network, that receives said waveshaped tach signals at a fan sense node (port 82 shown on Fig. 2) (see Fig. 1 and col. 5, lines 11-51).

Giorgio does not disclose a plurality of shaping networks.

The Examiner takes Official Notice that it is known to duplicate or multiplying components in order to duplicate or multiply their functions.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Giorgio's system to include a plurality of shaping networks, in order that square tach feedback signals with all unnecessary high frequency components can be removed out by shaping networks respectively.

As to claims 2 and 15, Giorgio also discloses a summing circuit (pulse accumulator 78 shown on Fig. 2), coupled to the fan sense node, that combines the waveshaped tach signals into a single combined signal; and a frequency discriminator, coupled to said summing circuit, that separates said single combined signal into multiple components, wherein each of said multiple components corresponds to a particular fan in said plurality of fans (see Fig. 2 and col. 5, lines 60-67).

As to claims 3, 10, 13, and 16, Giorgio also discloses an analog to digital converter (A/D convert 72 shown on Fig. 2) (see col. 5, lines 11-17).

4. Claims 4, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgio as applied to claims 1, 2, 8, 14, and 15 above, and further in view of U. S. Patent No. 5,926,386 to Ott et al.

As noted above, with respect to claims 4, 11, and 17, Giorgio teaches all the features of the claimed invention, but does not disclose a operational amplifier (op-amp) configured as a summer.

Ott et al. teach an operational amplifier (op-amp) configured as a summer (see col. 6, lines 27-32).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Giorgio's system to include a operational amplifier (op-amp) configured as a summer, as taught by Ott et al., because summer which may be constituted by a conventional integrated circuit operational amplifier which is known to be utilizable for the purpose of summing signals.

5. Claims 5, 9, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgio as applied to claims 1, 8, and 14 above, and further in view of U. S. Patent No. 6,163,266 to Fasullo et al.

As noted above, with respect to claims 5, 9, and 18, Giorgio teaches all the features of

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the claimed invention, but does not disclose the waveform shaping circuit including a resistor and a capacitor.

Fasullo et al. teach the waveform shaping circuit including a resistor and a capacitor (see col. 3, lines 35-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Giorgio's system to include the waveform shaping circuit including a resistor and a capacitor, as taught by Fasullo et al., in order to filter out noise contained in the amplified intermediate signal from the differential amplifier circuit (see Fasullo et al. col. 3, lines 36-37).

6. Claims 6, 12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgio as applied to claims 1, 2, 8, 14, and 15 above, and further in view of JP405056178 to Fujisaka.

As noted above, with respect to claims 6, 12, and 19, Giorgio teaches all the features of the claimed invention, but does not disclose the frequency discriminator utilizes a fast Fourier transform (FFT) process to separate said single combined signal into multiple components.

Fujisaka teaches the frequency discriminator utilizes a fast Fourier transform (FFT) process to separate said single combined signal into multiple components (see Constitution, lines 1-11)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Giorgio's system to include the frequency discriminator utilizes a

fast Fourier transform (FFT) process to separate said single combined signal into multiple components, as taught by Fujisaka, in order the component of the frequency can be extracted.

7. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgio as applied to claims 1 and 14 above, and further in view of U. S. Patent No. 5,604,654 to Wille et al.

As noted above, with respect to claims 7 and 20, Giorgio teaches all the features of the claimed invention, but does not disclose the waveform shaping network including a blocking capacitor.

Wille et al. teach the waveform shaping network including a blocking capacitor (see col. 9, lines 21-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Giorgio's system to include the waveform shaping network including a blocking capacitor, as taught by Wille et al., in order to block the DC component of the brush current (see Wille et al. col. 9, lines 28-29).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Agarwal discloses a method for power management and energy conservation in computer networking equipment using the information on network traffic intensity.

Harlan discloses a control circuit for regulating the rotational speed of a brushless DC

motor by pulse width modulating at least one power transistor to pass a motor supply signal to the motor armature.

Stepp, III discloses a system for actively cooling an electronic device.

Langley discloses a system, such as a computer system, having cooling fans, each having a fan motor and fan blades.

Garcia et al. disclose apparatus for monitoring fan speeds within a computing system including a tachometer turning with the fan, providing a tachometer signal including a number of pulses during each revolution of the fan.

Henderson et al. disclose a cooling system for cooling components of a computer.

Yang discloses a system for actively cooling an electronic device.

Collings et al. disclose an apparatus for sensing the rotation of a brushless DC fan including the fan and a sense/driver circuit and a capacitance.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. Tsai whose telephone number is (703) 305-0851. The examiner can normally be reached on Monday-Friday from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703) 308-1677. The fax number for TC 2800 is (703) 308-7382. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (703) 308-1782.

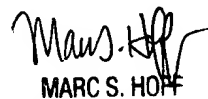
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In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 308-7382. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Carol S. Tsai

01/30/03


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
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